

1                   PERSONAL ILLICIT DRUG DETECTOR AND METHOD

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4                   Field of the Invention

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6         This invention relates to illicit drug detecting  
7         apparatus and methods.

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10                  Background of the Invention

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12         At the present time, the manufacture of various drugs  
13         and the availability to ordinary people has greatly promoted  
14         the illicit use of some of these drugs for unsavory  
15         purposes. For example, it is not uncommon to read in the  
16         news about women that have gone into a bar, night club, or  
17         similar establishment with friends or a date and been  
18         drugged and raped. The drugging is generally a result of  
19         someone surreptitiously introducing the drug into a woman's  
20         drink. The woman, believing she is simply drinking an  
21         alcoholic beverage, consumes part or all of the drink and  
22         becomes disoriented or unconscious, depending upon the  
23         dosage and the amount she drinks. She is then vulnerable to  
24         be taken from the premises and physically misused.

1       A typical drug used for such purposes is flunitrazepam,  
2 with a trade name Rohypnol®, and a street name roofies.  
3 Flunitrazepam belongs to the benzodiazepine family of  
4 medications. It is not marketed in the United States, but  
5 it is an approved medication in most other parts of the  
6 world, where it is prescribed mainly for short-term  
7 treatment of sleep disorders. Flunitrazepam is ten times  
8 more potent than Valium®. Continued use results in physical  
9 dependency. Flunitrazepam obtained for illicit use in the  
10 United States is usually purchased in Mexico and transported  
11 across the border. It is used along with alcohol to  
12 heighten the feeling of drunkenness.

13

14       When taken alone flunitrazepam is not likely to be  
15 lethal, but when mixed with alcohol it is more likely to be  
16 lethal due to the enhanced sedating effects on the central  
17 nervous system. Persons who become intoxicated from mixing  
18 flunitrazepam and alcohol may pass out and remain out for 8-  
19 24 hours. Flunitrazepam has also been reported to be used  
20 in combination with other drugs: to ease the coming down  
21 effect of a cocaine or crack high, or to enhance a heroin  
22 high. Flunitrazepam is usually swallowed as a pill or  
23 dissolved in a drink. Its use is spreading among high  
24 school and college youths. Flunitrazepam is becoming known

1 as a club drug and has reportedly been used as a "date rape  
2 drug".

3

4 Another major date-rape drug used in many instances is  
5 gamma hydroxybutyrate, known as GHB. As explained above, the  
6 drug is added to a drink and produces similar results.

7

8 Many women and young girls are subjected to  
9 flunitrazepam, GHB, or similar acting drugs without their  
10 knowledge or permission. This is a serious problem. Many  
11 women and especially young girls want to be socially active  
12 and join in the consumption of alcoholic beverages during  
13 parties, dates, etc. However, the danger of being drugged  
14 and physically accosted is real and places a heavy burden on  
15 the enjoyment. Some tests for the drugs are available but  
16 they generally consist of very complicated and lengthy or  
17 very obvious procedures. Most women do not want to offend  
18 their friends and/or dates by testing their drinks before  
19 consumption or prior to each taste of the drink.

20

21 It would be highly advantageous, therefore, to remedy  
22 the foregoing and other deficiencies inherent in the prior  
23 art.

1       Accordingly, it is an object the present invention to  
2 provide a new and improved personal illicit drug detector  
3 and method.

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5       A further object of the present invention is to provide  
6 a personal illicit drug detector and method that is  
7 unobvious, inconspicuous and substantially unnoticeable.

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9       Another object of the present invention is to provide a  
10 new and improved personal illicit drug detector and method  
11 that provides immediate protection without inciting  
12 displeasure or ire in friends and companions.

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Summary of the Invention

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3       The above problems and others are at least partially  
4 solved and the above purposes and others realized in a new  
5 and improved personal illicit drug detecting apparatus  
6 including a layer with a substance chemically reactive to a  
7 suspected drug. The layer is positioned on at least one  
8 fingernail of a user. The substance can be blended into  
9 finger nail polish and positioned on at least one nail by  
10 painting or in the form of a decal or it can simply include  
11 the substance if the person does not use finger nail polish.  
12 The finger nail can then be inconspicuously moistened with  
13 liquid from a suspected drink. If the layer turns color the  
14 drink contains the suspected drug and should be discarded or  
15 otherwise left.

16

17       It is further contemplated that a plurality of finger  
18 nails can be provided with layers of the substance on each  
19 nail. The plurality of nails can then be used a plurality  
20 of times to test the same drink at different times or  
21 different drinks at different times. In a still further  
22 embodiment, substances for different suspected drugs can be  
23 positioned on different nails and tests for the different  
24 drugs can be performed on the same or different beverages.  
25 In each of the above tests the procedure can be performed

1 inconspicuously and without arousing the interest or  
2 suspicion of any companions at the table.

1                   Brief Description of the Drawings

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3                 The foregoing and further and more specific objects and  
4         advantages of the invention will become readily apparent to  
5         those skilled in the art from the following detailed  
6         description taken in conjunction with the drawings in which:

7

8                 Fig. 1 illustrates a woman in a typical situation with  
9         a personal illicit drug detector disposed on one or more  
10      fingernails, in accordance with the present invention; and

11

12                Fig. 2 is an enlarged view of the fingernails from FIG.  
13      1 illustrating in more detail the disposition of the  
14      personal illicit drug detector of the present invention.

1           Detailed Description of a Preferred Embodiment

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3         The manufacture and availability of various drugs has  
4 greatly promoted the illicit use of some of these drugs for  
5 unsavory purposes. For example, it is not uncommon for  
6 women that have gone into a bar, night club, or similar  
7 establishment with friends or a date to be drugged and  
8 raped. The drugging is generally a result of someone  
9 surreptitiously introducing the drug into the woman's drink.  
10 The woman, believing she is simply drinking an alcoholic  
11 beverage, consumes part or all of the drink and becomes  
12 disoriented or unconscious, depending upon the dosage and  
13 the amount she drinks.

14

15         Many different devices or systems have been devised in  
16 attempts to solve this problem. In most instances the  
17 device cannot be used conveniently without attracting  
18 attention and, in many instances, arousing the ire of the  
19 woman's companion. For example, drink coasters, test strips,  
20 cards, etc. have been devised that have test spots or  
21 portions on them (see for example, U.S. Patent No.  
22 6,153,147). The person with the suspected drink must then  
23 somehow splash a small amount of her drink on one of the  
24 spots or dip the test strips in the drink and observe the  
25 spot to determine if a color change occurs. In most

1 instances the color change does not occur until the spot is  
2 dry, which can take a relatively long time. The problem  
3 here is that it can be difficult to splash the correct  
4 amount of drink onto the coaster or dip a strip of paper in  
5 the drink unnoticed. Chiefly this action can attract  
6 attention and in many instances make the woman appear sloppy  
7 and/or indiscreet.

8

9 Another example of a drink testing device is a swizzle  
10 stick with a treated disc on one end. The user is  
11 encouraged or instructed to place the swizzle stick in her  
12 drink just like with a normal swizzle stick. Anytime the  
13 drink is left unattended by the woman for a short time, such  
14 as by a trip to the bathroom, she is instructed to simply  
15 reverse the swizzle stick and dip the treated disc end into  
16 the drink. The problem here is that in many instances the  
17 drink comes with a swizzle stick and the woman must discard  
18 the original and replace it with the treated swizzle stick.  
19 This action can be noticeable and highly questionable.  
20 Also, to reverse the stick and place it in the drink while  
21 observing it for color change can again be very noticeable  
22 and highly questionable. These actions are difficult to  
23 perform without raising the interest of companions at the  
24 table.

1       Turning to the drawings, in which like reference  
2 characters indicate corresponding elements throughout the  
3 several views, attention is first directed to Fig. 1, which  
4 illustrates a woman sitting at a cocktail table with an  
5 alcoholic beverage before her. The woman has a personal  
6 illicit drug detector 10 disposed on one or more  
7 fingernails, in accordance with the present invention. Drug  
8 detector 10 includes a layer having a substance chemically  
9 reactive to a suspected drug positioned, preferably, on at  
10 least one fingernail of the user. The layer can be, for  
11 example, a blend of the chemically reactive substance and  
12 finger nail polish that is positioned on the finger nail,  
13 either by means of a decal or simply painted on the nail.  
14 An enlarged view of drug detector 10 on a finger nail is  
15 illustrated in FIG. 2. Here it should be understood that  
16 drug detectors in the form of decals or appliqués can be  
17 conveniently placed in other positions on a finger, such as  
18 under the finger nail, on the pad of the finger, etc.

19

20       The user can, very discreetly, moisten drug detector 10  
21 on her finger nail with her drink without raising suspicion  
22 or otherwise appear to be doing anything different. Drug  
23 detector 10 will dry relatively rapidly because of the  
24 natural body heat and any color change can be discreetly  
25 observed without raising any suspicion or interest in

1   companions at the table. Here it should be noted that the  
2   detection apparatus is not limited to a color change, upon  
3   detection of a suspected drug, but could include, for  
4   example, an image change or the like. Thus, the woman can  
5   be safe without raising the interest and/or ire of  
6   companions at the table or at the party.

7

8       It is anticipated that a woman may want to provide more  
9   than one drug detector 10 on more than one finger nail, for  
10   the instance where more than one drink is consumed or where  
11   some intervening circumstance has occurred between an  
12   initial test and the finishing of the drink. Also, it may  
13   be desirable to provide several (two or more) drug detectors  
14   that include different chemically reactive substances to  
15   test for different drugs, although in many instances (e.g.  
16   where the drug detector is capable of sensing a large  
17   variety of illicit drugs) this may not be necessary.

18

19       Chemically reactive substances for the purpose  
20   described are well known and will not be described in  
21   detail, except to list some examples below. It is known,  
22   for example, to use unique mixtures of monoclonal and  
23   polyclonal antibodies to selectively identify methadone,  
24    opiates, marijuana, amphetamine, cocaine, benzodiazepine and  
25   their metabolites. A composition made by treating a

1 particular silica with phenyltrichlorosilane and with 3-  
2 mercaptopropyltrimethoxysilane useful in detecting the  
3 presence of GHB in a liquid is described in U. S Patent No.  
4 6,156,431.

5

6 It should be understood that the described testing  
7 apparatus is capable of testing for the presence of many  
8 drugs other than those mentioned above and the specific  
9 drugs mentioned are only for purposes of example and are not  
10 intended to limit the scope of the invention. Also, while  
11 the drug detector 10 is described as including a "layer" of  
12 a chemically reactive substance, it should be understood  
13 that the layer could include a capillary coating wherein the  
14 chemically reactive substance is contained within the  
15 capillaries and the reaction takes place within the  
16 capillaries. For example, a decal could be constructed as a  
17 capillary-filled structure and applied as a layer.  
18 Alternatively, the layer could consist of appropriately  
19 sized pores containing the chemically reactive substance or,  
20 for example, a heavy metal that acts as a reaction site and  
21 is trapped in the pores. In this example, the size of the  
22 pores is chosen such that the heavy metals are trapped and  
23 don't leach out into the environment.

1       Thus, a new and improved personal illicit drug detector  
2 and method have been disclosed. Use of the personal illicit  
3 drug detector and method is unobvious, inconspicuous and  
4 substantially unnoticeable so that drinks can be discreetly  
5 tested to provide immediate protection without inciting  
6 displeasure or ire in friends and companions.

7

8       The invention has been described above with reference  
9 to one or more preferred embodiments. However, those  
10 skilled in the art will recognize that changes and  
11 modifications may be made in the described embodiments  
12 without departing from the nature and scope of the  
13 invention. For instance, the specific type and/or quantity  
14 of chemically reactive substance may vary in accordance with  
15 the situation or circumstances.

16

17       Various changes and modifications to one or more of the  
18 embodiments herein chosen for purposes of illustration will  
19 readily occur to those skilled in the art. To the extent  
20 that such modifications and variations do not depart from  
21 the spirit of the invention, they are intended to be  
22 included within the scope thereof, which is assessed only by  
23 a fair interpretation of the following claims.

1       Having fully described the invention in such clear and  
2 concise terms as to enable those skilled in the art to  
3 understand and practice the same, the invention claimed is: